POINTS OF INTEREST IN GOVERNMENT RESEARCH LABORATORIES FOR THE HOME ECONOMICS WORKER.

The statements here brought together represent the first part of a statement of investigations carried on in Government laboratories which are of interest to home economics workers. Some information regarding publications and exhibit material is also given. The present summary includes the work of the U. S. Department of Agriculture, together with lists of the publications of the Bureau of Education, U. S. Department of the Interior, and of the Federal Board for Vocational Education. It is hoped later to bring together similar statements regarding other branches of the government, among them the Public Health Service, U. S. Treasury Department; the Bureau of Standards, U. S. Department of Commerce; the Children's Bureau, U. S. Department of Labor.

In making inquiries relative to investigations it is advisable to address the chief of the bureau concerned as such letters are most likely to reach the person most nearly qualified to reply. When the interest is in some particular phase of the subject, a specific inquiry is more likely to bring the desired result than a general demand such as "Please send all available literature on cheese."

U N I T E D S T A T E S D E P A R T M E N T O F A G R I C U L T U R E

BUREAU OF ANIMAL INDUSTRY.

1. Animal Husbandry Division.

This division studies the breeding and feeding of farm animals and poultry. Its main sub-divisions are:

a. Animal genetics
b. Beef cattle investigations
c. Horse and mule investigations
d. Poultry investigations. (Poultry breeding, poultry feeding, preserving eggs, poultry clubs, pigeon and squab investigations)
e. Sheep and goat investigations.
f. Swine investigations. (Gives out formulae for dry-curing and brine-curing of hams, bacon, etc. in the home. Investigates the problems of soft pork, chiefly from peanut-fed hogs.

2. Biochemic Division.

This division carries on work relative to biological products, study of tuberculin, of serums, viruses and bacterins and examines meat and meat food products in connection with the meat inspection. Hog-cholera investigations have received a great deal of attention. The composition, nutritive value, and wholesomeness of edible viscera from meat food animals (including the antineuritic properties and other food values of viscera) is an illustration showing the nature of the chemical research. Another illustration is, the studies of changes in the chemical composition of beef due to cold storage; another the use of sugar substitutes in the curing of meat. The germicidal value of various disinfectants, and studies of the suitability of various preparations of peptone for indol production, are two further illustrations of the investigational work of this division.

BUREAU OF ANIMAL INDUSTRY - Continued

3. Dairy Division.

Principles of breeding; studies in feeding for milk production; production, standardization of manufacturing process, care and distribution of dairy products (milk, cream, butter, ice cream, different types of cheese); utilization of by-products (viz: the use of dried milk albumen by the commercial baker as an egg substitute in cake-baking); studies in factory and in milk-plant management and sanitation.

a. Dairy extension.

Stimulation of dairy production and of the utilization of dairy products. (E.g., "milk week" campaigns, cottage cheese demonstrations.

b. Creamery and cheese factory development and improvement. (E.g., manufacture of butter, of Swiss, Camembert and Roquefort cheeses, on a large scale; improvement of creamery refrigeration facilities, of its machinery for fuel and power efficiency.

c. Inspection of butter for the Navy. (E.g., demonstration of the superior quality of sweet-cream butter when held in storage for long periods.)

d. Inspection of renovated butter factories.

e. Market milk investigations.

Dairy sanitation. Surveys of city milk supplies.

Methods of rating sanitary conditions of milk production.

Assistance and advice in the organization and operation of cooperative and other milk plants and pasteurizing plants.

Studies of requirements in terms of pounds of feed, hours of labor, etc., of the cost of milk production, in a number of representative dairy sections throughout the country.

Studies in operation and cleaning of milking machines.

Experiments with the whipping qualities of cream.

Studies on treatment of gargetty cows, on elimination of garlic flavor in milk, on effect of silage in causing flavors and odors in milk.

f. Dairy research laboratories.

Studies of methods of increasing calcium and phosphorus content of ration, and their effects upon milk cows and other animals; studies of acidity and alkalinity of various rations, their effect on cattle.

Bacteriological studies of commercial butter starters; on sterilization of dairy utensils by dry heat; on the spongenes test for the quality of milk; on the growth of organisms in different concentrations of sweetened condensed milk.

A study of "sandiness" in commercial ice cream; of a collection of definite formulae for ice-cream mixes; of the cause of "buttons" in sweetened condensed milk; of factors influencing the coagulation of evaporated milk in sterilizing.

4. Meat Inspection Division.

This includes ante and post mortem inspections of cattle, calves, sheep, swine, goats, and horses for about 50 diseases or undesirable conditions; inspection of the fresh and cured meat from these animals, of sausage, canned

BUREAU OF ANIMAL INDUSTRY - Continued.

meat, meat extract, lard, lard oil, lard stearin, "compound" and other lard substitutes, pork prepared by special processes to be eaten uncooked, oleo stock, sterilized meat products, edible tallows, oleo oil, oleo stearin, oleomargarin; also market inspection in 45 cities. There is also inspection of the subject matter used by packers and canners on their labels; of the character of wrappings; of the amount and nature of the free liquids in the can of meat or meat products; of the method of labelling certain meat products which contain added cereal or parts of carcasses other than flesh; of the addition of deleterious substances; of adulteration of spices and other ingredients. Analyses are made of inks, waters, rat exterminators, and any materials which may come in contact with the meat. There is inspection of all creameries preparing butter used as an ingredient in oleomargarin.

5, 6, 7, 8. Divisions of Field Inspection, Tick Eradication, Tuberculosis Eradication, Hog Cholera Control.

These are all concerned with the eradication and prevention of diseases affecting food and other domestic animals. The Division of Virus-Serum Control has charge of regulatory work aimed to insure a high quality of viruses, serums, and similar products for combatting animal diseases. The Miscellaneous Division supervises veterinary colleges under the Departments' regulations and performs various other duties.

9. The Pathological Division conducts the scientific investigation of the diseases of animals, studies the poisoning of live stock by plants, and examines viruses, serums, and other remedies for the treatment or prevention of various ailments in domestic animals. A serum for use in butulism has been developed by immunizing sheep, and has been tried in cases of forage poisoning; and in emergencies, in some cases of botulism in humans.

10. The Zoological Division investigates those parasites (both internal and external) which affect domestic animals. This includes a study of trichinosis and of proper methods for treating pork which is to be made into sausages or chopped meats eaten without cooking.

BUREAU OF BIOLOGICAL SURVEY.

This bureau employs trappers to control those outbreaks of rabies in certain western States, Oregon, Nevada, Utah, and Washington, which are being disseminated through the agency of predatory animals. It has in charge also, the control of rodent as well as of other pests; and has actively assisted State agricultural extension directors and county agents in the organization and conduct of campaigns for rodent eradication. In certain Southern States (e.g., in parts of Florida and Texas) this is a part of the public health work in averting danger of the spread of bubonic plague. Production of domestic rabbits and hares for food has been given attention, as has also the conservation of game and of fur-bearing animals, and studies on the qualities, grades, and identification of the furs made from them. Birds both as help and as hindrance to agriculture, also as game, have received much attention.

BUREAU OF CHEMISTRY.

This bureau, which has 24 laboratories and 3 offices in the city of Washington, is charged with the enforcement of the food and drugs act, and with the constructive research work designed to promote efficiency in the food and drug industry and to develop new methods for the discovery and detection of sophistication. Parts of its work may be treated under the following headings, a few illustrations being given under each heading:

1. Carbohydrate Laboratory.

Invertose method of making a cane sirup which does not crystallize and which has superior keeping qualities; use of sugar substitutes, such as glucose and maltose sirups, in canning and in candy making; other studies in the making of commercial candies on a large scale; making of sirups and the making of furfural from corn cobs.

2. Color Investigation Laboratory.

Researches in dyestuffs; studies of coloring matters used at soda fountains.

3. Dehydration Division.

Studies of the methods employed in commercial dehydration plants, with a view to elimination of undesirable features, and encouragement of desirable ones, such as the blanching or other pre-treatment before dehydration. Reports have been issued upon the preparation of sweet potato flour by methods comparable to those used in the manufacture of white potato flour.

4. Food Control Laboratory.

This laboratory supervises the chemical examination of food products under the food and drugs act. A few illustrations of its more recent undertakings which may be of special interest to home economics workers are:

A study of the comparative values of eggs and egg substitutes, in cake making; development of a formula for soy-bean bread, for peanut bread made for household consumption; investigations to establish the inferiority and deleterious qualities of saccharine as a sweetener in various sirups, concentrated sweetening agents, and other foodstuffs; development of methods of manipulation in bread-making and cake-making, which shall be perfectly mechanical and thus eliminate the "personal equation" when testing varieties of flour, etc. Studies of the changes taking place in grain during germination, malting and storage; and milling and bread-making.

5. Food Investigation Laboratory.

Studies of vinegar making; of essential oils and flavoring extracts; of gelatin.

6. Leather and Paper Laboratory.

Investigations as to the qualities and properties of different leathers,

BUREAU OF CHEMISTRY (Continued).

papers, tannins, rosins, turpentines. A farmers' bulletin on the care of leather has just been issued. The important effect of relative humidity upon the tensile strength of leather has been demonstrated. Methods for determining the strength and water resistance of papers and paper products, such as fiber board, wall board, corrugated board, and the adhesives used in their manufacture, have been worked out.

7. Microbiological Laboratory.

This laboratory consists of a research section and a regulatory section and works upon the relation of molds and bacteria to food products. Its research projects cover studies of yeast, oysters, sauerkraut, canned goods, deterioration of cereal products and forage, classification and activities of bacteria and molds, and the development and standardization of methods applicable to biological inspection work. Its regulatory staff conducts the bacteriological inspection of milk, oysters, gelatin, table waters, tomato products, canned foods, and miscellaneous inspection samples in which spoilage is suspected.

A few illustrations of its research projects are as follows: Studies of the bacterial flora of spoiled canned salmon, sardines, and other canned fish. Studies on Bacillus botulinus, in cultures derived from spoiled preserved foods; of their toxicity for experimental animals, of their growth in foodstuffs; of regulatory measures necessary in order to prevent the recurrence of botulism from contaminated foodstuffs. Studies of the best methods of brining cucumbers and cabbage for the making of pickles and sauerkraut. Studies of oriental fermentations, especially the production of soy sauces from soy beans.

8. Oil, Fat, and Wax Laboratory.

This laboratory analyzes oils, fats, cooking compounds, chocolates, nut butters, and similar substances in connection with the enforcement of the food and drugs act. It studies the chemical composition of American food oils, fats, and hydrogenated compounds, and carries on investigations in the production of such products.

The nature of the fatty acids found in cotton seed oil, of the composition of tomato seed, Hubbard squash seed, okra seed and hollyhock seed, and Chinese colza seed oils have been reported from this laboratory. Comparative analyses of a large number of samples of classified grades and kinds of unscoured wool have been published.

9. Protein Investigations Laboratory.

Proteins of the peanut, velvet bean, coconut, buckwheat, and kafir are under investigation. The purpose of these researches is to ascertain the nutritive value of the various proteins. Feeding experiments are conducted in cooperation with the Bureau of Animal Industry. Experimental work is also done to improve the methods used in the preparation and analysis of proteins.

Papers have also been published, from the Bureau of Chemistry, upon the determination of the jellying power of gelatins and glues by the polariscope, upon the preparation and properties of ash-free gelatins, and upon the acidity of ash-free and commercial gelatins.

10. Water [and Beverage] Laboratory.

This laboratory studies the composition of waters, brines, salts, and

BUREAU OF CHEMISTRY (Continued).

nonalcoholic beverages, and analyzes samples of such products taken in the enforcement of the food and drugs act. It investigates sanitary and technical problems relating to the production of bottled waters, nonalcoholic beverages, and related products.

11. Office of Net Weight Investigations.

Determinations as to proper fill of cans (drained weight) in case of canned spinach, Swiss chard, beet tops, Lima beans, pears, pitted cherries, sauerkraut, wax and refugee beans, peaches, and green peas have been made; circulars announcing these determinations have been issued.

12. Fruit and Vegetable Utilization Laboratory.

Studies of home and commercial methods for making a sirup by action of malt diastase on different varieties of sweet potatoes, have been made in this laboratory. It has also conducted experiments on the manufacture of starch from potatoes and on the preservation of fruit juices.

13. Microchemical Laboratory.

This laboratory makes microscopical and microchamical studies of foods, drugs, cattle feed, paper and textile materials, miscellaneous agricultural products, etc. It also makes microscopical examinations of insecticides, and studies methods for their microscopical identification and estimation. Special attention is given to the histological study of fruits, spices, cereals, starches, and other agricultural products for the purpose of perfecting methods for detecting the adulteration of these products.

Spice standards have been determined and published in Office of the Secretary Circular 136, and through the Service and Regulatory Announcements of the Bureau.

14. Tea Inspection.

The supervising Tea Examiner stationed at Washington and seven tea examiners and their assistants stationed at the various ports of entry for imported teas inspect to see that all imports comply with the provisions of the tea act of 1897 and also with the food and drugs act. Samples showing the official tea standards for the year are distributed each year among those examiners enforcing the law, and may be bought at cost by the tea trade and others interested.

15. Field Investigation Service, Citrus By-Products Laboratory.

Methods for utilization of cull oranges, lemons, and grapefruit have been studied. Directions have been distributed for the manufacture of citrus-fruit butter, jams, marmalades, beverages; of confections from orange and grapefruit peel; of the production of orange vinegar by different processes.

16. Field Investigation Service, Food Research Laboratory.

This laboratory makes chemical, bacteriological, and histological studies of foods preserved by low temperatures. Milk, poultry, eggs, and fish have been the objects of investigation, with reference to their decomposition and putridity during

BUREAU OF CHEMISTRY (Continued).

preparation, transportation, storage, and marketing, in connection with the food and drugs act. A special investigation of frozen and dried eggs and egg products has been carried on, chiefly in the egg-breaking establishments, and with the co-operation of the industry; a similar investigation of fish, both fresh and frozen is now being conducted.

17. Office of Development Work.

The practical application in the industries and in the arts of the results of scientific research is quite apart from the actual carrying out of an investigation. That the industrial world may have the full benefit of all such results obtained in the Bureau of Chemistry, an office has been established to serve as the connecting link between the Government and the manufacturer or other interested person. This office, known as the Office of Development Work, assumes charge of the results of any given fundamental project of the Bureau as soon as it reaches the stage where it gives promise of being ready for industrial development. The Office of Development Work, of course, handles only discoveries made in the Bureau of Chemistry.

Publications.

Reports of the results of the Bureau's work are issued from time to time. Some take the form of Department of Agriculture bulletins or circulars, a list of which may be had on application to the Bureau, while others, which, it is believed will be of interest chiefly, to some particular class of readers or to certain industry, appear in the scientific and trade journals of the country.

BUREAU OF CROP ESTIMATES.

This bureau not only announces statistics dealing with farm production during past years; it is interested also in forecasting the chief demands for future production. This involves "estimates and forecasts of consumption..... of agricultural products" as well as of their production.

BUREAU OF ENTOMOLOGY.

1. Stored-Product Insect Investigations.

This Office studies both common and newly introduced insects injuriously affecting stored wheat, corn, oats, and other grains and flour, meal, and other mill products, including all cereal foodstuffs in flour mills, elevators, and warehouses, involving special investigation of railway and steamboat lines as carried of infestation; study of the insect enemies of dried fruits and nuts, beans, peas, and cowpeas, and cured meats, hides, furs, and manufactured fabrics; and investigation and demonstration of appropriate measures for the control of such insects, including tests of promising and standard fumigants and other insecticides against these species, and of kiln drying and heat methods against grain pests, especially grain weevils, and of those attacking edible legumes.

This work includes the study of household pests; e.g., a special study has been made of the black carpet beetle.

2. Investigations of Insects Affecting the Health of Men and Animals.

This field covers the relation between certain ticks and spotted fever; mosquitoes and malaria and yellow fever; and the house fly and typhoid fever. The investigations also deal with insects as internal and external parasites of animals and seek practical methods for their control. A number of pests affecting domestic animals, including the cattle tick, the stable fly, and the horn fly, are being studied.

Further progress has been made recently in the perfecting of fly-traps and baits, and in the use of repellent and attractive chemicals for the control of the house fly and of various blow flies; also in the determination of practical anti-mosquito measures that apply in the prevention of malaria upon plantations and farms. Studies of the durability of various types and grades of screen wire-cloth as used for protection against flies and mosquitoes, have been continued for several years.

3. Investigations in Bee Culture.

These include studies of the structure, development and behavior of the bee, its care and management, its diseases; also of other details of honey production.

OFFICE OF FARM MANAGEMENT AND FARM ECONOMICS.

Several important preliminary studies in the cost of production (wheat, cotton, beef cattle, sugar beets), have been carried out in this Office; also, farm business analyses have been made for hundreds of farms. Cost-enterprise records have been made, using as a basis for study, the reports secured from many farms where the Farm Account Book, which originated in this Office, has been used.

FOREST SERVICE.

Forest Products Laboratory: The investigations include methods of seasoning, kiln drying, preserving and testing of different kinds of wood; of pulp and paper-making, of box designs (e.g., for egg cases, for fruit crating); of glue work; of timber mechanics and physics; of the types of organisms causing decay of wood; of the production of stock feed for chemical processes from wood cellulose (e.g., in sawdust).

INSECTICIDE AND FUNGICIDE BOARD.

This board assists the Secretary of Agriculture in the enforcement of the Insecticide Act of 1910. It is charged with the inspection of disinfectants (including household disinfectants), insecticides, insect repellents, fungicides, dips for animals, etc., and it conducts research incident to such inspection.

BUREAU OF MARKETS.

Among the subjects, the studies of this bureau cover such subjects as these: Methods of grading, standardizing, packing, storing, and shipping farm products; standardization of the containers in which they are packed; waste in marketing; methods of accounting and business practice for agencies marketing farm products; solution of the problems inherent in the organization and operation of farmers' cooperative organization; accumulation of accurate and complete data concerning the cost of marketing.

1. The Market Reporter is a weekly publication which gives a domestic and foreign market information service, concerning wholesale prices of food products, feeding stuffs, and textile fibers. In addition, mimeographed periodical reports (varying from daily to quarterly) are issued on cotton, fruits and vegetables, dairy and poultry products, livestock and meats, peanuts, and honey.

2. Official establishement and demonstration of cotton standards.

3. Establishment and display of tentative wool standards, based on the diameter of the fiber. Encouragement of cooperative wool marketing by farmers under favorable conditions.

4. Live stock and meats.

Preparation of the data regarding comparative costs and yields of the various wholesale cuts of beef has been undertaken. In order that the public may better understand the grading system in use, exhibits have been prepared consisting of transparent photographs in natural colors of typical specimens of each grade of live stock (beef, mutton, lamb, and pork) and the corresponding grades of carcasses and cuts of dressed meats. Descriptive matter covering the same points and also different styles of making the wholesale and retail cuts, has been prepared.

5. Grading of fruits and vegetables.

Permissive standards have been issued for Bermuda onions, northern-grown onions, white potatoes and sweet potatoes. Tentative grades have been prepared for barrelled apples, for boxed Western apples; for asparagus, peaches, cabbage, and tomatoes.

Investigations of handling apples and pears in the course of harvesting, packing and transporting, and determination of the stage of maturity at which they should be picked, have been begun; also investigations to determine the factors responsible for deterioration of these fruits in shipment. A study of the methods of pre-cooling and refrigerating California oranges was undertaken; also of the effectiveness of a proper degree of refrigeration in preventing brown rot of peaches; and of proper methods of harvesting and of handling in the field and in storage, to prevent early decay of sweet potatoes.

The effect of low temperature on sweet potatoes, tomatoes, California table grapes and other fruits and vegetables was studied to determine the proper methods of handling products injured by chilling or freezing in order that they may be utilized as food; and also to obtain fundamental information regarding suitable temperatures for the cold storage of fruits and vegetables.

BUREAU OF MARKETS (Continued).

Investigations concerning the preservation of fruits and vegetables by freezing storage are continued. The factors affecting the keeping of these products and the influence of temperatures ranging from 20°F. to 5°F. on the quality and condition of frozen berries, plums, cherries, beans, sweet corn, and other fruits and vegetables are studied.

6. Standardization of containers.

Studies of the capacity, dimensions, shape, type, and strength of various containers for fruits and vegetables have been made, and the preparation of appropriate legislation is being considered.

7. Investigation and determination of grain standards, enforcement of U. S. Grain Standards Act; testing of numerous samples of grain for moisture content. Incidentally such services are sometimes rendered in connection of the boys' club work.

8. Milling and baking tests are made, to determine the extent to which the quality of wheat is affected by admixture of various amounts of rye, oats, barley, and sorghum grains, as well as of objectionable foreign materials. Similar tests have been made to determine the quality of a recently discovered rust - resistant variety of wheat.

9. Methods and costs of marketing farm products.

A special investigation of the retail meat trade is in progress. It is expected that this investigation will make available a large amount of information relative to the prevalence and comparative numbers of the various types of shops, such as straight meat market, combination grocery and meat market, stall in public market, and chain store; the relation of number of dealers to population in various communities and parts of the country; municipal abattoirs and the relation of local slaughter to the retail trade; methods of sale and meat distribution in rural districts; the extent to which systematic accounting is utilized and various methods of advertising employed; the comparative prevalence of cash and credit and of delivery and non-delivery trade; costs of operation in the various types of stores and under the various methods of operation; sanitary conditions and state and local regulations; the relation of retail to wholesale prices and the methods followed by retailers in adjusting their business to sudden changes in wholesale prices; and various other matters of interest.

The general purpose of the work on direct marketing is to ascertain, analyze, and classify the factors bearing on the success of marketing farm products from producer to consumer direct by parcel post or express; also to determine the limitations of direct marketing, both from physical and economic standpoints.

BUREAU OF PLANT INDUSTRY.

The activities of this bureau include the improvement of useful plants by selection and breeding, the investigation of destructive plant diseases and development of methods for their control, the introduction of new plants from foreign countries, the improvement in cultural methods for producing crops, and the development of improved methods of crop handling and utilization.

Some of the illustrations of this work which might be selected as being of special interest to home economics workers are:

Office of Horticultural and Pomological Investigations: Studies in the preservation and clarification of fruit juices (apple, grape); studies of chemical and physical changes occurring in fruits during cold storage; studies in curing of the sweet potato; studies in canning different varieties of fruits and vegetables.

Office of Foreign Seed and Plant Introduction: Studies of new varieties of vegetables and fruits, such as the dasheen, the yam, the chayote; studies of oil-seed crops (e.g., oil yield of peanuts grown on different soils and in different climates.

Office of Drug, Poisonous, and Oil-Plant Investigation: Growth of the important commercial varieties of cotton, flax, binder-twine plants (Porto Rican, Philippine), corn, wheat, fruits and vegetables, etc., in various sections of this country.

BUREAU OF PUBLIC ROADS.

The work of this bureau includes various phases of rural engineering. Among its lines of work may be mentioned:

1. Road Material Tests and Research.

   These include studies of dust preventives and road binders of interest in connection with certain problems of sanitation.

2. Rural Engineering Investigations.

   These include studies of domestic water supply and sewage disposal on the farm; plans for farm buildings and equipment drawn with reference to convenience, economy, and improved standards of rural life; farmstead lay-outs; sources of electrical energy available to farmers, methods of securing current; methods of heating the farm home.

   Among material prepared for printing or general distribution are found farmers' bulletins on planning the farmstead and on one-register furnaces, an article on light and power in the farm home, notes on the use of cold-water paints, domestic refrigeration, and a list of firms manufacturing or selling electric lighting plants.

3. Drainage Investigations.

BUREAU OF PUBLIC ROADS (Continued).

3. Drainage Investigations.

This line of research is concerned with the construction and maintenance of farm drainage works and the equipment used therein; and includes studies of the value of sewage irrigation for certain types of soil.

DIVISION OF PUBLICATIONS.

This division supervises the editing, printing, and distribution of publications and press material, and directs the illustrations, exhibits, motion pictures, and related informational matters.

1. The more important results of the work of the Department are published in --

(a) Department bulletins, including professional papers and all others of more complete and permanent character. These are usually printed in limited editions.

(b) Department circulars, dealing with special topics of lesser importance or of temporary or emergency interest. These are generally issued for special distribution.

(c) Farmers' bulletins, which give in popular form the more practical results of the Department's work. These are usually issued in large editions for free distribution by the Department and by the Senators and Representatives in Congress.

(d) The Yearbook of the Department, which contains short popular articles on various features of Department work.

Requests for publications may be sent directly to the chief of the Division of Publications. If the exact title, or author, and number of the bulletin be known, this is a great advantage; nevertheless general requests for bulletins or for information concerning some particular subject are also given attention.

Bulletins which are priced must be purchased directly from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., and orders should be accompanied by remittance. Price lists of Government publications are supplied on request by the Superintendent of Documents.

2. Press Service.

Secures circulation in popular form of the discoveries and recommendations of the scientific workers of the Department. Includes three series:

(a) Weekly News Letter. This contains among other things, stories reporting the progress of the Department's investigations. Subscription price, 50 cents a year.

(b) The "Special Information Service", an illustrated weekly syndicate sheet of eight columns, for daily newspapers. These are stories of food production in popular form.

(c) "Food and Farming Weekly", a press clipping sheet containing eight to twelve short stories of 200 to 300 words each, about Departmental investigations.

DIVISION OF PUBLICATIONS (Continued).

3. Exhibits.

This office handles the correspondence of the Department relative to exhibits at fairs and expositions of various kinds; cooperates with the several branches of the Department in preparing exposition material; ships, installs, and cares for such exhibits; and investigates methods of displaying them.

4. Office of Motion-Picture Activities.

This office has charge of the motion-picture work of the department. It prepares scenarios from material furnished by the various bureaus; directs the making of the film and supervises the motion-picture laboratory in film manufacture; develops and executes plans for film distribution, and handles the dissemination of information concerning agriculture, forestry, home economics, and other subjects covered by the activities of the department through the medium of film and lantern slides, in motion-picture theaters.

At the end of the fiscal year the department's motion-picture films included 125 agricultural subjects. The number of reels available for distribution is 560, or more than 560,000 feet of film.

Arrangements have been completed by which persons and institutions not directly connected with the Department of Agriculture may purchase, under certain restrictions, positive prints of the department's motion pictures.

STATES RELATIONS SERVICE.

1. Office of the Director.

Handles the general administrative and editorial work of the Service. The editorial division has charge of lantern slides and other illustrative material for service use. Investigations on Agricultural Instruction in schools and on Farmers' Institutes are also found here.

2. Office of Experiment Stations.

Publishes the Experiment Station Record, a periodical which gives abstracts of publications reporting agricultural and allied science.

3. Office of Extension Work in the South (15 Southeastern States).

Includes home demonstration work with women and girls.

4. Office of Extension Work in the North and West (43 Northern and Western States.

Includes home demonstration work with women and boys' and girls' club work. The principal home-making activities of girls' club work are bread-making, canning, work with clothing, meal preparation, and hot school lunches. Literature is available concerning methods of organization and results attained.

5. Office of Home Economics.

a. Administrative section. Collects historical and other source material on subjects of home economics and data regarding the selection, care and repair of household equipment; develops methods for the popularization of scientific information regarding nutrition and other phases of home economics by means of photographs, models and charts. Has conducted studies of the

time expended on household tasks in rural homes and of the food actually eaten in over 1000 typical American homes and institution.

b. Editorial Section. Assists in preparing reports of investigations for publication by the department in technical and professional journals; brings together information on food selection, clothing, household equipment and management in the form of bulletins, circulars, and miscellaneous articles; cooperates with the extension service in arranging material for the use of home economics workers and with the Press Service in the preparation of popular articles on home economics subjects.

c. Respiration calorimeter laboratory. Makes determinations of the energy expended by the human body under special conditions of nutrition and muscular work, including that of household tasks; also of the specific heat of such materials as fruits, vegetables, and eggs, and of their heat elimination under various conditions with a view to improving methods of storage and incubation.

d. Digestion laboratory. Conducts feeding experiments with human beings to test the digestibility of such products as different flours, starches and other cereal preparations, various kinds of meat and fish, and a long series of fats and oils.

e. Experimental kitchen laboratory. Studies such problems as the use of certain "bottle yeasts" for home bread making; the conservation of fuel in the management of household range (manufactured gas, kerosene); the relative efficiency of various methods of processing canned vegetables and meats, and other details of the canning process; the efficiency of added vinegar or lemon juice as a germicide, in canning vegetables; methods of cooking dried vegetables; home jelly-making and preparation of pectin; causes of variation in fat absorption during frying of doughnuts and other foods; the best methods of use of various types of cooking fats for pastry making, for cake making; the cooking qualities of different grades and classes of meat; the use of the pressure cooker for batters and doughs, for tough cuts of meat of various shapes and sizes, for strong-juiced vegetables; the rate of heat penetration, in canning and in cooking various kinds of food products. Standardization of the procedures of experimental cookery when working upon the above problems has been attempted, and mimeographed forms have been prepared, which describe the details of such standardization.

BUREAU OF EDUCATION.

The Bureau of Education gathers and disseminates educational data, serves as a clearing house for educational matters, advises with persons interested in education, promotes desirable educational tendencies, and conducts and directs experiments in education.

Bulletins.

No. 36 (1914). Education for the home - Part I. General statement. B.R.Andrews. 10¢
No. 37 (1914). Education for the home - Part II. State legislation, schools, agencies. B. R. Andrews. 30¢
No. 38 (1914). Education for the home - Part III. Colleges and universities Benjamin R. Andrews. 25¢
No. 39 (1914). Education for the home - Part IV. Bibliography, list of schools, Benjamin R. Andrews. 10¢
No. 50 (1915). Health of school children - II. W. H. Heck. 20¢
No. 23 (1917). Three short courses in home making. Carrie A. Lyford. 15¢
No. 46 (1917). The public-school system of San Francisco, California. 60¢
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HOME ECONOMICS EDUCATION SERVICE.

The two large interests of this service are: First, problems connected with college courses in home economics designed to train vocational teachers; and second, courses in homemaking for day, part-time, and evening classes.

For use in connection with college courses there will be available in the near future a bulletin prepared in cooperation with the Children's Bureau, United States Department of Labor, and entitled, "Course in Child Care and Child Welfare for Use in Teacher Training Institutions."

For use in connection with day, part-time, and evening classes, four bulletins have been prepared:

Bulletins 23 - Clothing for the Family.
28 - Organization and Administration of Home Economics Education.
35 - Use and Preparation of Food.
37 - Survey of the Needs in the Field of Vocational Home Economics Education.

Bulletins Nos. 28 and 37 may be obtained on request to the Federal Board of Vocational Education, Washington, D. C. Nos. 23 and 35 are not available now for free distribution, but may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. for 15¢ and 20¢, respectively.

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